CLAIMS

What is claimed is:

1. A method of analysis comprising the steps of:

   (a) labeling at least two samples of test molecules each with a unique radioactive labeling agent; and

   (b) mixing said samples of test molecules into a homogenous mixture of samples of test molecules.

2. A method of analysis comprising the steps of:

   (a) labeling at least two samples of test molecules each with a unique radioactive labeling agent;

   (b) mixing said samples of test molecules into a homogenous mixture of samples of test molecules; and

   (c) separating a first group of test molecules from a second group of test molecules.

3. The method of analysis of Claim 1 wherein said samples of test molecules undergo mixing further comprising the step of:

   detecting and quantifying at least one quantity of test molecule derived from one of said two samples.

4. The method of analysis of Claim 1 wherein said samples of test molecules undergo mixing further comprising the step of:

detecting and quantitatively comparing at least one quantity derived from said samples.

5. The method of analysis of Claim 2 wherein the step of detecting and differentiating between samples of test molecules through an observance of the unique labeling agent further comprising the step of:

employing a software for use in analyzing the observations.

6. The method of analysis of Claim 2 further comprising the step of:

making a high-throughput assay.

7. The method of analysis of Claim 1 further comprising:

means for exploiting the difference in radiation energy to enable quantification concerning a sample.

8. A method of quantifying unique radioactive isotopes in a mixture of radioactive isotopes using their difference in radiation energy.

9. The method of Claim 8 wherein a screen is used to selectively block more radiation from one radioactive isotope than radiation from another radioactive isotope.

10. A screen used to selectively block more radiation from one isotope than radiation from another isotope

11. The method of analysis of Claim 1 further comprising the step of exploiting difference in half-life of isotopes to enable quantification of different isotopes.

12. A method of quantifying unique radioactive isotopes in a mixture of radioactive isotopes using their difference in half-life.

13. The method of analysis of Claim 2 wherein a magnetic field is used to enhance the resolution of radiation signal.

14. Use of a magnetic field to enhance resolution of radiation signal.

15. The method of analysis of Claim 2 further comprising a means for comparing DNA methylation.

16. The method of analysis of Claim 2 further comprising a means for comparing protein phosphorylation.

17. The method of analysis of Claim 2 further comprising a means for comparing protein glycosylation.

18. A method for coding molecules from at least two samples with different radioactive isotopes.

19. The method of Claim 18 further comprising the step of decoding the origin of said molecules using difference in radiation energy between said isotopes.

20. The method of Claim 18 further comprising the step of decoding the origin of said molecules using difference between said isotopes' half-life.

21. The method of Claim 18 further comprising the step of decoding the origin of said molecules using their differences in mass.

22. A method for comparing the abundance of similar molecules from at least two samples comprising the steps of:

(a) coding said samples each with a unique radioactive isotope;

(b) mixing said samples into a homogeneous mixture;

(c) separating one group of molecules from another group of molecules; and

(d) decoding and quantifying the relative amount of each radioactive isotope.

23. The method of analysis of Claim 22 further comprising the step of identifying molecules whose abundance varies between said samples.

24. A labeling composition comprising a means for labeling proteins with radioactive Cystein other than ^{35}S-Cystein.

25. A labeling composition comprising a means for labeling proteins with radioactive Methionine other than ^{35}S-Methionine.